

CLAIMS**What is claimed is:**

1. A stroking ball-type constant velocity joint comprising:
an inner joint member having an outer surface defining a
plurality of radially outwardly facing grooves characterized by said plurality of
radially outwardly facing grooves including substantially longitudinal grooves
in combination with substantially helical grooves, wherein each helical groove
is disposed in mirrored rotational relation with a corresponding helical groove.

2. The stroking ball-type constant velocity joint of claim 1
wherein each of said plurality of radially outwardly facing grooves extends in
mirrored relation to at least one other groove.

3. The stroking ball-type constant velocity joint of claim 1
wherein four grooves of the said plurality of radially outwardly facing grooves
extend parallel to one another.

4. The stroking ball-type constant velocity joint of claim 1
wherein each of said substantially helical grooves extends between two of said
substantially longitudinal grooves.

5. The stroking ball-type constant velocity joint of claim 1
wherein said substantially helical grooves and said substantially longitudinal
grooves are disposed in alternating relation along said outer surface of said inner
joint member.

6. The stroking ball-type constant velocity joint of claim 1
wherein said plurality of radially outwardly facing grooves include at least three
grooves extending in different directions with respect to one another along said
outer surface.

7. The stroking ball-type constant velocity joint of claim 6 wherein each of said three grooves extends in mirrored relation to at least one other groove.

8. The stroking ball-type constant velocity joint of claim 1 wherein a first helical groove extends between second and third helical grooves extending in opposite rotational relation to said first helical groove.

9. The stroking ball-type constant velocity joint of claim 1 wherein said plurality of radially outwardly facing grooves includes eight grooves.

10. The stroking ball-type constant velocity joint of claim 1 further comprising:

a plurality of balls individually disposed in and movable along said plurality of radially outwardly facing grooves; and
style="padding-left: 40px;">a cage surrounding said inner joint member and defining a plurality of windows wherein each of said plurality of balls individually pierces one of said plurality of windows, said plurality of windows including short windows adjacent said substantially longitudinal grooves and long windows adjacent said substantially helical grooves.

11. The stroking ball-type constant velocity joint of claim 10 wherein said inner joint member includes a first end and a second end and said plurality of radially outwardly facing grooves extend from said first end to said second end and include four substantially longitudinal grooves disposed along said outer surface ninety degrees from one another and four substantially helical grooves individually disposed along said outer surface between two of said four substantially longitudinal grooves and wherein each of said substantially helical grooves extends in opposite relation to two adjacent helical grooves.

12. A stroking ball-type constant velocity joint comprising:
an inner joint member having a first end and a second end and an
outer surface defining a plurality of radially outwardly facing grooves
extending from said first end to said second end including four substantially
longitudinal grooves disposed along said outer surface ninety degrees from one
another and four substantially helical grooves individually disposed along said
outer surface between two of said four substantially longitudinal grooves;

a plurality of balls individually disposed in and movable along
said plurality of radially outwardly facing grooves;

a cage surrounding said inner joint member and defining a
plurality of windows wherein each of said plurality of balls individually pierces
one of said plurality of windows, said plurality of windows including short
windows adjacent said substantially longitudinal grooves and long windows
adjacent said substantially helical grooves; and

an outer joint member surrounding said cage and having a third
end and a fourth end and an inner surface defining a plurality of radially
inwardly facing grooves extending from said third end to said fourth end
including four substantially longitudinal grooves disposed along said inner
surface ninety degrees from one another and four substantially helical grooves
individually disposed along said inner surface between two of said four
substantially longitudinal grooves and wherein said plurality of outwardly facing
grooves of said inner joint member cooperate with said plurality of inwardly
facing grooves of said outer joint member forming a plurality of passages
guiding movement of said plurality of balls.

13. The stroking ball-type constant velocity joint of claim 12
wherein said substantially helical grooves and said substantially longitudinal
grooves are disposed in alternating relation along said outer surface of said inner
joint member.

14. The stroking ball-type constant velocity joint of claim 12 wherein each of said helical grooves of said inner joint member and each of said helical grooves of said outer joint member extends in opposite relation to two adjacent helical grooves.

15. The stroking ball-type constant velocity joint of claim 12 wherein at least one of said plurality of passages is defined by a first helical groove of said inner joint member and a second helical groove of said outer joint member wherein said first and second helical grooves extend in opposite rotational relation to one another.